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The future of air superiority

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Abstract

This blog explores the relevance of USAF Brigadier General Alex Grynkewich's four-part series on the future of air superiority: (1) The Imperative[1]; (2) The 2030 problem[2]; (3) Defeating A2/AD[3]; and (4) Autonomy, survivability, and getting to 2030[4]; to Australian air and space power. The four-part series summarise the efforts and findings of the United States Air Force's (USAF) Air Superiority 2030 Enterprise Capabilities Collaboration Team (ECCT) and the subsequent Air Superiority Flight Plan 2030[5].

Re-envisioning air superiority – beyond control of the air

> *"Air superiority, often thought of as a mission, is more correctly conceived of as a condition. At its most basic, that condition is achieved when a force possesses the degree of control of the air required for joint operations [to] succeed."* [1]

Distinguishing air superiority (bookended by air parity and air supremacy) as a limited condition rather than a mission, is a central point of relevance in Grynkewich's arguments. Rising military technologies of competitor nations will constrict Western opportunities for air superiority in time and geo-spatially. It is, therefore, critical for the definition of air superiority be properly understood by the Royal Australian Air Force (RAAF). If misunderstood, RAAF risks misusing resources, developing misconceived air campaign plans that are too dependent on US interoperability or, on the contrary, too self-reliant, and ultimately failing in its mission.

Air superiority, confused with the control of the air (CoA) and its doctrinally subordinate air power missions of defensive counter air (DCA) and offensive counter air (OCA), is frequently associated with fighter aircraft operations[6]. Yet air superiority, as a condition, can be achieved through a variety of means often overlooked by air campaign planners. Air superiority can be achieved by surface and ground based air defence, as well as through cyber and space domain effects, to name just a few. Hence, some air superiority effects require a plan that incorporates far more than just air force or even military assets. This imposes a significant coordination and command/control (C2) overhead which, as articulated in Air Force Strategy (AFSTRAT)[8], is being prepared for by the RAAF. A significant feature of the 2020 AFSTRAT is how it connects the RAAF's strategy with wider Defence and national strategy, and how it prepares RAAF for deeper engagement with defence industry and allies.

With regards to air superiority, the focus of air campaign planning should be primarily on what condition needs to be achieved, *then* the means by which it will be best achieved. In an Australian air campaign, the primary responsibility for establishing the necessary level of CoA rests with the RAAF. However, achieving air superiority is not limited to RAAF's doctrinal CoA

missions of DCA and OCA. Exemplified by the first line of effort (LOE) of the AFSTRAT, some or all of the means to achieve the necessary level of CoA may rest with other force elements, such as the Royal Australian Navy's Hobart-class destroyer, the Army's future ground-based air defence assets, or the intelligence community's cyber assets.

This is perhaps counter-intuitive to the RAAF's traditional view of air superiority as the being something achieved from the air domain and by air platforms, such as fighter aircraft. Clearly understanding that air superiority is a condition rather than a mission —and one that will almost certainly be achieved by combining the effects from multiple domains and platforms— is an imperative for the RAAF being realised through contemporary thinking and strategic planning. Regional competition is seeing forthright and innovated change in RAAF and national security strategy and procurement.

Air superiority in 2030

The simple but uncomfortable conclusion of Grynkewich's "The 2030 problem"[2] is that the historical 'game changer' approach to gaining air superiority, such as a new generation fighter, is untenable in 2030. The development of a sixth generation fighter was judged to be cost and time prohibitive. Moreover, threats are evolving faster than the US can develop singular 'game changers'. Grynkewich's study found that the USAF will not retain a military advantage over potential adversaries in 2030 unless a new air superiority paradigm is developed.

Grynkewich argues that the optimal way forward, the new paradigm, is via incremental modernisation across an array of systems. That is, the rapid but graduated upgrade of current platforms, systems, and weapons that comprise a family of systems (FoS), as opposed to concentrating on major upgrades to single platforms. Notably this paradigm includes better use of air-domain data (especially for targeting) as well as cyber and space domain. As an interoperable partner of the USAF, the RAAF is adapting to match this approach.

As Grynkewich observes, the USAF has adopted radical paradigms before. The development of intercontinental ballistic missiles in the 1950s saw the USAF shift away from a bomber-only model for nuclear operations. A radical shift in thinking on air superiority that is focussed on data integration and exploiting the cyber and space domains is analogous to the reframing of concepts for delivery of nuclear weapons. Australia must be prepared and should position itself for radical changes of this magnitude.

With such rapid advances in a broad array of technology and dramatic shifts in USAF thinking, Australia's pursuit of interoperability with the USAF will have to be refined and aligned if it intends to make an integrated contribution to coalition air operations. RAAF's Super-Hornet fleet (sourced from the US Navy) while enhancing capability probably complicates rather than enhances interoperability with the USAF because the USAF has little involvement with sustainment or operation of the US Navy air fleet.

An effective command and control grid[3] uses data for decision processes. Many command and control grids will be automated and performed by machines, which will help achieve fast and decisive actions required for air superiority. Given though the numerous domains and organisations, the vast number of units, platforms and weapons that must be linked and the peculiarities of each of them, this will be immensely challenging for the USAF to develop. Australia's interoperability with such a grid will be similarly difficult to achieve while establishing an independent version may be prohibitively costly. Consequently, the maintenance of Australian interoperability with the USAF could require greater reliance on US systems, particularly on integrating data and exploiting the space and cyber domains.

Reliance on US systems could reduce Australia's capacity to conduct operations that are independent of the US. The ADF's mix of platforms, systems, and weapons means that it will have a quasi-FoS, but without the support of the US command and control grid, the value of this quasi-FoS in achieving air superiority may be compromised. Moreover, keeping pace with

the USAF's change will be a challenge and may come at the detriment of interoperability with Australia's neighbours.

Conclusions

As the RAAF looks at the concept of air superiority into the future, a fighter-jet-centric model for achieving air superiority is shifting under AFSTRAT to a multi-domain FoS model where fighter-jets are just one system within that model and quite possibly not at the centre. In this paradigm, increasing dependence on the US, particularly the enabling command and control grid, seems inevitable. Alignment to USAF doctrine and tactics seems unavoidable. Self-reliance by the RAAF, therefore, becomes almost impossible.

The inability to gain sufficient CoA compromises all other operations, and Australia faces a dilemma. Australia's ability to achieve air superiority alone will be diminished if ADF's systems and tactics are overly reliant on US systems. Yet developing both a system that can be interoperable with the USAF and a self-reliant system of the RAAF for maintaining air superiority seem unlikely to happen. Grynkewich's arguments thus pose a double imperative for Australia: rumination on air superiority; and striking the balance between US interoperability and Australian self-reliance.

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